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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/679,422	10/07/2003	Michio Masuda	TOC-0009	3477

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EXAMINER

SHARP, JEFFREY ANDREW

ART UNIT	PAPER NUMBER
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3677

DATE MAILED: 12/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/679,422

Applicant(s)

MASUDA, MICHIO

Examiner

Jeffrey Sharp

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Status of Claims

- [1] Claims 1-5 are pending.

Claim Objections

- [2] Claims 2, 4 and 5 are objected to because of the following informalities:

It is preferred for clarity that Applicant amend claim 2 to read "The female screw mechanism according to claim 1, wherein the component is a nut". This helps in defining how the mechanism structurally cooperates with the nut.

Regarding claims 4 and 5, there is insufficient antecedent basis for the limitation '*the means for fixing the insert to the nut*'.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

[3] The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

[4] Claims 1, 2, and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seddon US-964,069 in view of either Kobusch US-6,146,073 or Sundh US-1,830,918.

Seddon teaches an insert having a rhombic cross-section that is attached at one end to a nut. See Seddon claim 1. The insert is integral with the nut at one end generally to 1) prevent loss of the insert, 2) prevent rotation of the insert, 3) enable the coil insert to expand upon insertion threading of the male screw, and to 4) enable a constricting/locking effect during the attempt of removal of the nut, or upon loosening effects of vibration.

However, Seddon fails to disclose expressly **at least one coil to be of smaller diameter** than the male screw at the side where the male screw enters the female screw.

Kobush teaches at least one coil smaller in diameter than the male screw (Col 1 lines 32-34) for facilitating the insertion of the insert into the threaded bore. (See also, Caminez US-2,152,681). A male screw could be inserted into the nut from either direction, including towards the reduced diameter portion of the insert.

Sundh teaches at least one coil of smaller diameter than the male screw in order to obtain a contractile locking force against the threads of the male screw. See Sundh page 1 lines 83-89, page 2 lines 29-37, page 3 lines 6-11, and page 3 lines 69-73.

At the time of invention, it would have been obvious to one of ordinary skill in the art to modify the insert taught by Seddon, to comprise a reduced diameter coil portion facing the male screw as suggested by either Kobush or Sundh, in order to 1) provide an advantageous lead-in for making the insert easier to install into the nut as demonstrated by Kobush, and/or 2) to provide greater locking contractile (i.e., '*constricting*') forces on the male screw threads as it is received by the nut, while still enabling the coil to expand into the threaded bore of the female screw. See also, US-3,023,796 to Penten, which shows coils of an insert decreasing in diameter on which could be the side of entry of a male screw.

As for claim 2, the component is a nut.

As for claim 5, Kobush discloses in Col 1 lines 15-21, that prior art helicoil inserts are designed to be oversized, so as to be frictionally held within a threaded female bore.

[5] Claim 3 rejected under 35 U.S.C. 103(a) as being unpatentable over Seddon v. Kobusch or Seddon v. Sundh as discussed above, in even further view of Marshall 422,027.

Seddon v. Kobusch and Seddon v. Sundh teach all of the limitations of the instant claims 1 and 2, including attaching one end of the insert to an end of the nut.

However, Seddon v. Kobusch and Seddon v. Sundh fail to disclose expressly the means for fixing the insert at one end of the nut, as an **end inserted into a depression in the nut**.

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Marshall teaches means for fixing the insert at one end of the nut, as an end inserted into a depression in the nut.

At the time of invention, it would have been an obvious matter of design choice to one of ordinary skill in the art, to modify the means for fixing the insert taught by both Seddon v. Kobusch or Seddon v. Sundh, to be of a '*peg-in-hole*'-type as suggested by Marshall, as an alternate and equivalent means to 1) prevent separation of the two parts, and/or 2) prevent relative rotation between the two. See Marshall, page 1 lines 46-51. See, also US-1,724,460 to Day which also shows '*peg in hole*' means for securing an insert against rotation.

[6] Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seddon v. Kobusch or Seddon v. Sundh as discussed above, in even further view of Unsworth et al. US-2001/0053317.

Seddon v. Kobusch and Seddon v. Sundh teach all of the limitations of the instant claims 1 and 2, including attaching one end of the insert to an end of the nut.

However, Seddon v. Kobusch and Seddon v. Sundh fail to disclose expressly the use of adhesive or welding to join the insert and the nut.

Unsworth et al. teach that the use of welding, adhesives, and pressure fits at one or more points between an insert and a nut is well known in the prior art. See Unsworth et al., paragraph [0029].

At the time of invention, it would have been an obvious matter of design choice to one of ordinary skill in the art, to modify the means for fixing the insert taught by both Seddon v.

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Kobusch or Seddon v. Sundh, to comprise adhesives, welding, or friction fits as equivalent means for securing the insert against rotation within the threaded bore of the nut.

Conclusion

[7] The prior art made of record and not relied upon is considered pertinent to applicant's disclosure is as follows:

JP- 3011117 U teaches the inverse of a female nut with helicoil insert. The reference suggests a helicoil attached to one or two ends of a fastener. It would be obvious to invert the male fastener to provide the same desired locking effect for a female nut fastener.

JP 07-317743 teaches a common rhombus cross-section for a helicoil insert in Figure 8(d)

US 6171040 B1	USPAT	Sato; Takashi
US 3316795 A	USPAT	DAVID TANN
US 5449259 A	USPAT	Clohessey; Kip E.
US 4165194 A	USPAT	Flower; Ralph F. J.
US 3565149 A	USPAT	Lewis K. Wetzel
US 1267656 A	USPAT	Goserud
US 1179446 A	USPAT	Mennie
US 1017845 A	USPAT	Brown
US 0637360 A	USPAT	Stark
US 0614835 A	USPAT	Carruthers
US 0152249 A	USPAT	Penfield
US 1189081 A	USPAT	Fitzgerald
US 1324822 A	USPAT	Hood
US 1406169 A	USPAT	CARR JAMES H et al.
US 1724460 A	USPAT	DAY CHARLES L
US 2378462 A	USPAT	BREEDLOVE CHARLES B
US 2604135 A	USPAT	FOLKE RYDBERG
US 3023796 A	USPAT	ERIK PENTEN LARS
US 2152681 A	USPAT	HAROLD CAMINEZ
US 6276883 B1	USPAT	Unsworth; John et al.

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US 6494657 B2

USPAT

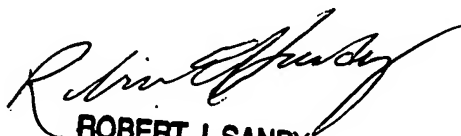
Unsworth; John D. et al.

[8] Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey Sharp whose telephone number is (703) 305-0426. The examiner can normally be reached on 7:30 am - 5:00 pm Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, J.J. Swann can be reached on (703) 306-4115. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JAS


ROBERT J. SANDY
PRIMARY EXAMINER